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Todd Peterson

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EXAMINER

PRITCHETT, JOSHUA L

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**BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES**

Application Number: 10/806,750  
Filing Date: March 22, 2004  
Appellant(s): PETERSON ET AL.

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Shruti S. Costales  
For Appellant

**EXAMINER'S ANSWER**

This is in response to the appeal brief filed August 1, 2008 appealing from the Office action mailed January 12, 2007.

**(1) Real Party in Interest**

A statement identifying by name the real party in interest is contained in the brief.

**(2) Related Appeals and Interferences**

The examiner is not aware of any related appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

**(3) Status of Claims**

The statement of the status of claims contained in the brief is correct.

**(4) Status of Amendments After Final**

The appellant's statement of the status of amendments after final rejection contained in the brief is correct.

**(5) Summary of Claimed Subject Matter**

The summary of claimed subject matter contained in the brief is correct.

**(6) Grounds of Rejection to be Reviewed on Appeal**

The appellant's statement of the grounds of rejection to be reviewed on appeal is correct.

**(7) Claims Appendix**

The copy of the appealed claims contained in the Appendix to the brief is correct.

**(8) Evidence Relied Upon**

6,180,415	SCHULTZ	1-2001
5,444,529	TATEIWA	8-1995

**(9) Grounds of Rejection**

The following ground(s) of rejection are applicable to the appealed claims:

***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

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(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1-5, 7, 8, 18, 19 and 32-35 are rejected under 35 U.S.C. 102(e) as being anticipated by Schultz (US 6,180,415).

Regarding claims 1, 2 and 32, Schultz discloses determination of a dynamic property of a fluid volume (col. 45 lines 46-55) in a small volume device selected from the group consisting of an array chip, array plate and array slide (col. 14 lines 50-59; examiner interprets microarray as being equivalent to array plate), comprising determining the distribution or location or both of at least one resonance light scattering particle in the fluid volume by detecting light scattered from the at least one resonance light scattering particle (col. 9 lines 18-26; PRE stands for plasmon resonance entities) wherein the resonance light scattering particle is not specifically bound to another entity (col. 8 line 40). Schultz further discloses the property determined is the fluid flow rate (col. 45 lines 46-55).

Regarding claim 3, Schultz discloses the property determined is particle distribution in the fluid volume (col. 9 line 23).

Regarding claim 4, Schultz discloses probes are present in the fluid volume and the particle distribution is indicative of the distribution of the probes in the fluid volume (col. 9 line 24). The particles attached to a bonding site act as a probe in the fluid volume.

Regarding claim 5, Schultz discloses the distribution of probes is on a solid phase surface<sup>3</sup> (col. 14 line 51).

Regarding claims 7 and 35, Schultz discloses the dynamic property is a flow pattern in a device or portion of a device, the device being an article of manufacture including one or more channels or reservoirs for fluid (col. 45 lines 50-55). The determination of a flow pattern requires either a reservoir with the fluid flowing within the reservoir or a channel with the fluid flowing through the channel thus the presence of a reservoir or channel is inherent in any measurement of a flow pattern within the broadest reasonable interpretation of the terms reservoir and channel.

Regarding claim 8, Schultz discloses the dynamic property is fluid mixing being evaluated in one or more portions of the device or through the entire device, the portions being selected from the group consisting of a mixing chamber, a port, a flow channel, a pump, a valve, and a flow channel intersection (col. 49 lines 56-65).

Regarding claims 18, 33 and 34, Schultz discloses the at least one resonance light scattering particle comprises a plurality of distinguishable resonance light scattering particles (col. 49 lines 56-65).

Regarding claim 19, Schultz discloses the plurality of distinguishable resonance light scattering particles is used to analyze mixing of fluids from two different sources (col. 49 lines 56-65). The different cells disclosed in Schultz are equivalent to different fluids. The term fluid is defined as tending to flow or conform to the outline of its container. Animal cells conform to the outline of their container due to their flexible outer membrane and mostly liquid interior.

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Schultz (US 6,180,415) in view of Tateiwa (US 5,444,529).

Schultz teaches the invention as claimed but lacks specific reference to drying. Tateiwa teaches that the light source incident upon the fluid sample will cause the fluid to evaporate, thus the fluid would dry on the surface (col. 2 lines 11-27). It would have been obvious to one of ordinary skill in the art at the time the invention was made that the light source of Schultz could perform the same evaporative function as the light source in Tateiwa for the purpose of determining the surface tension of the fluid by the size and shape of the portions of fluid as the surrounding fluid evaporates.

Claims 14-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Schultz (US 6,180,415).

Schultz teaches the invention as claimed but lacks reference to specific volumes. Schultz does state that individual cells and groups of cells can be examined by the same device (col. 45

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lines 22-49). Cells are known to have volumes within the claimed ranges. For example, white blood cells have volumes on the order of a nanoliter (nL) and red blood cells have volumes on the order of a picoliter (pL). One might examine a single cell to observe cell division (Schultz, col. 45 line 26). One might examine a larger quantity of cells to observe cells in circulation (Schultz, col. 45 line 45). Therefore the number of cells examined determines the volume of fluid in the device. It would have been obvious to one of ordinary skill in the art at the time the invention was made to have the Schultz fluid volume fall within the claimed ranges as suggested by Schultz for the purpose of examining either individual cells for the smallest claimed volume (10 pL to 10 nL) or a large group of cells for the largest claimed volume (200 nL to 2  $\mu$ L).

#### **(10) Response to Argument**

Applicant argues Schultz does not deal with light scattering particles to gather information about fluids. Specifically applicant argues animal cells cannot be fluids. The applicant fails to provide a specific definition for the term "fluid" in the current specification. Therefore the examiner referred to the dictionary to determine the extent of the definition. The definition of fluid is "a substance tending to flow **or** conform to the outline of its container." (Emphasis added) An animal cell has a flexible outer membrane which can bend and contort in order to conform to the outline of its container. Therefore the examiner interprets the term fluid to include such an object within the broadest reasonable definition of fluid. If applicant intends the invention to be limited to either a liquid or a gaseous sample then applicant must claim such a limitation with in the language of the claim.

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Applicant argues the liquid in Schultz is not a fluid target. Applicant then states the Schultz reference teaches the fluid contains a target. The examiner does not understand how a target moving within a fluid would not provide information about the fluid, when the target is examined. Further the claim language does not require any specific target only a method to obtain information about a fluid volume through the use of light scattering particles. Therefore the claim language cannot distinguish over the prior art because applicant fails to claim any specific target.

Applicant argues the Schultz reference never mentions the term fluid. As stated above the cells taught by Schultz are fluids within the broadest reasonable interpretation of the term.

Applicant argues observing a blood cell in circulation is not observing dynamic fluid properties. Applicant argues analyzing the movement of the cell will not provide information about a fluid. Applicant's invention targets unbound particles dispersed in a liquid as a manner of determining fluid properties. Likewise observing the movement of a cell will provide information regarding the dynamic properties of the fluid.

Applicant argues the Schultz reference fails to teach fluid dynamics. The claim language does not require teachings of fluid dynamics only that the method provide information about the dynamic properties of a fluid. The examiner interprets the term dynamic as meaning movement or in flux. The teachings of Schultz include reference to analysis during circulation (col. 45 line 45). Circulation is a type of movement, therefore analysis occurring during circulation provides information regarding a dynamic property.

Applicant argues Schultz lacks reference to fluid mixing properties. The examiner interprets fluid mixing properties to include the ability of fluids to remain mixed and not separate

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following a mixing procedure. Applicant admits Schultz teaches analysis of mixed particles to determine the location of the particles within the mixture. This analysis satisfies the claimed limitations.

Applicant argues Schultz fails to teach particles not specifically bound to another entity. The Schultz reference states, "PREs attached or otherwise distributed therein." The examiner takes this to mean the particle is either attached, meaning bound in some way, or not attached meaning unbound. The examiner admitted that the passage may not be sufficient to teach a definite manner of unbound distribution but does provide a teaching that unbound distribution is possible. The examiner views the claim language, "specifically bound" to be a subset of some bound or attached distribution. The Schultz teaching of "otherwise distributed" means unattached or unbound which is an entire different set than bound. Therefore not only does the Schultz reference teach an embodiment including "not specifically bound" but teaches an embodiment including completely unbound particles.

Applicant argues animal cells are not fluid. This argument is addressed above in relation to the definition of the term fluid.

Applicant argues the prior art does not enable the presently claimed invention. Recently case law clarified that the prior art enablement standard is lower than the enablement standard for a patent. The SRI v. Internet Security case makes clear that a prior art reference does not have to enable the claimed invention to be applicable as prior art.

Applicant argues Tateiwa fails to teach fluid evaporation. Applicant argues Tateiwa condenses water but does not evaporate water. The water condensed by Tateiwa originates a

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vapor from the sample created through evaporation. Therefore Tateiwa teaches evaporation in addition to teaching condensation.

Applicant argues Examiner failed to provide sufficient reasons for combining Tateiwa and Schultz. The motivation for the combination is expressed in the rejection stated above.

### **(11) Related Proceeding(s) Appendix**

No decision rendered by a court or the Board is identified by the examiner in the Related Appeals and Interferences section of this examiner's answer.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

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